

Steven J. Foresti
Chief Investment Officer, Wilshire Consulting

November 23, 2016

Mr. Henry Jones
Chairman of the Investment Committee
California Public Employees' Retirement System
400 P Street, Suite 3492
Sacramento, CA 95814

Re: Tobacco Divestment Analysis

Dear Mr. Jones:

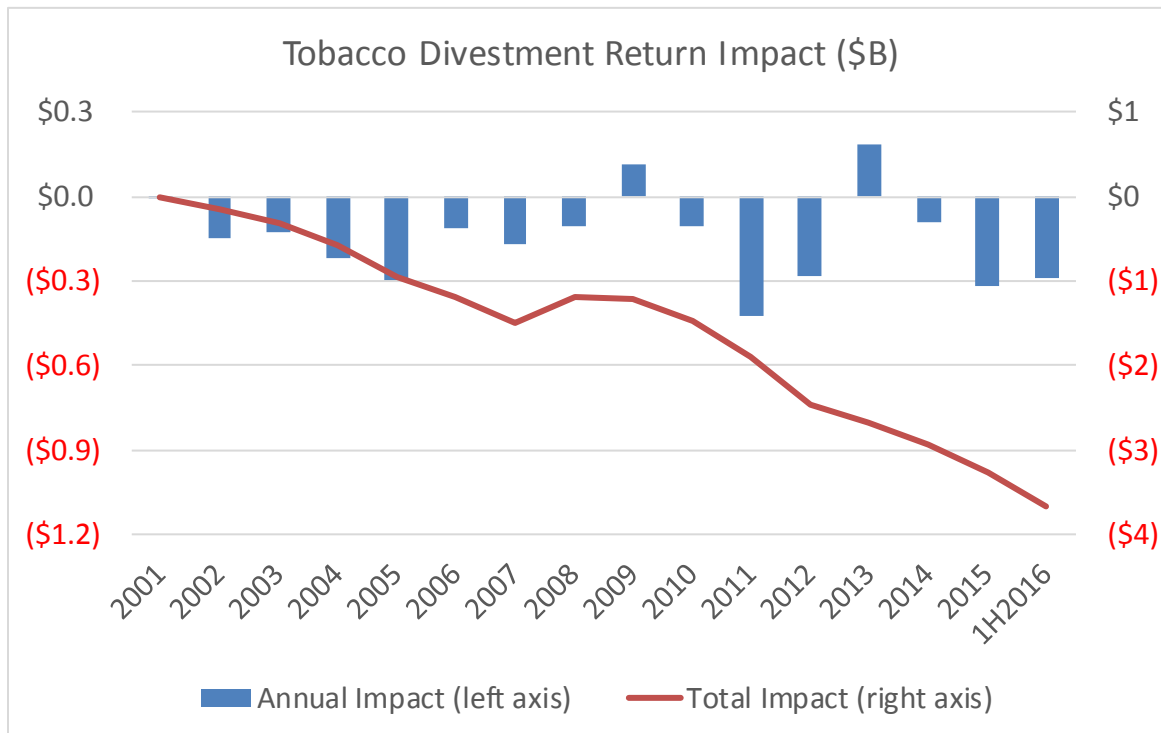
You requested Wilshire's updated comprehensive analysis of the impact of tobacco divestment activities within the CalPERS Global Equity portfolio. Our analysis, which is summarized below, provides calculations of the historical impact and potential future impact of the divestment of tobacco-related securities as of June 30, 2016. This report does not pass judgment or comment on the political, social, health, or moral merits of these divestment activities, but simply calculates or estimates their gain or loss to the CalPERS investment portfolio.

Summary of Findings

The following table summarizes Wilshire's estimates of the transaction cost and return impacts from tobacco divestments. The present value figures below have been calculated to show the estimated impact on the total fund through June 2016, whereby prior period gains and losses are carried forward at the PERF's total return. The percent (%) impacts express these present value dollar amounts against the PERF's June 2016 market value of \$295.1 billion. The appendix includes an annual display of these present value estimates along with annual inflation-adjusted (CPI) estimates of the historical return impacts.

	Impact of Tobacco Divestment			
	Raw Value		Present Value	
	\$MM	% PERF	\$MM	% PERF
Transaction Costs	(\$1)	0.0%	(\$3)	0.0%
Return Impact	(\$2,385)	-0.8%	(\$3,677)	-1.2%
Total	(\$2,386)	-0.8%	(\$3,681)	-1.2%

Below, we chart the annual return impacts (columns) along with the present value of these impacts through time. The return impact has been negative in 14 out of 16 years with a maximum estimated annual gain of \$183 million in 2013 and a maximum estimated annual loss of -\$423 million in 2011.



On a forward-looking basis, we have also estimated the probable impact of a tobacco-free portfolio relative to an all-inclusive portfolio by calculating an expected tracking error, or variance in return between the exclusionary portfolio and a market portfolio. Please note that in any given period, this tracking error is equally likely to generate outperformance as underperformance.

Using index data as of June 30, 2016, Wilshire calculated the estimated tracking error (excess risk) that would occur from excluding prohibited tobacco securities. All calculations were performed using Wilshire’s Atlas GR6 global risk model, a software system that is generally recognized as an industry-leading risk system.

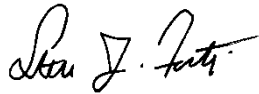
We calculated that the prohibited 22 tobacco-related companies comprise 1.45% of the benchmark (\$4.3 billion of a \$153.1 billion global equity portfolio). The projected annual tracking error of the constrained index compared to the unconstrained index is 0.168%. On a

base of \$153.1 billion, the risk to the portfolio is expected to lead to a performance discrepancy greater than:

- +/- \$329.6 million 1 out of every 5 years (1.282 standard deviations)
- +/- \$423.0 million 1 out of every 10 years (1.645 standard deviations)
- +/- \$504.0 million 1 out of every 20 years (1.960 standard deviations)

Please do not hesitate to contact us should you require anything further or have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Sean J. Felti". The signature is written in a cursive style with a horizontal line at the end.

Appendix: Annual Tobacco Divestment Return Impacts

Year	Annual Impact (\$MM)	Cumulative Impact of Tobacco Exclusion			
		Total Fund (PV)		CPI (PV)	
		Return	\$ MM	Rate	\$MM
2001	(\$9)	-6.12%	(\$14)	1.55%	(\$9)
2002	(\$144)	-9.55%	(\$151)	2.38%	(\$154)
2003	(\$125)	23.23%	(\$311)	1.88%	(\$283)
2004	(\$218)	13.21%	(\$575)	3.26%	(\$510)
2005	(\$294)	10.41%	(\$947)	3.42%	(\$823)
2006	(\$110)	15.41%	(\$1,200)	2.54%	(\$951)
2007	(\$172)	9.99%	(\$1,498)	4.08%	(\$1,164)
2008	(\$102)	-27.12%	(\$1,187)	0.09%	(\$1,266)
2009	\$117	11.89%	(\$1,206)	2.72%	(\$1,184)
2010	(\$103)	12.45%	(\$1,462)	1.50%	(\$1,305)
2011	(\$423)	1.16%	(\$1,903)	2.96%	(\$1,767)
2012	(\$284)	13.28%	(\$2,466)	1.74%	(\$2,083)
2013	\$183	16.22%	(\$2,679)	1.50%	(\$1,932)
2014	(\$88)	6.51%	(\$2,941)	0.76%	(\$2,033)
2015	(\$321)	-0.09%	(\$3,264)	0.73%	(\$2,367)
1H2016	(\$290)	3.68%	(\$3,677)	1.91%	(\$2,704)